



The Safety Corner

From the Marine Corps Center for Lessons Learned
October 20, 2006



Space Heaters

This issue of the Safety Corner highlights lessons and observations about space heaters and their use in work and living spaces in support operations in the War on Terror.

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From the Director:

"We have fought in every clime and place...", these words are sung proudly by Marines all over the world. Many of the places in which we train and fight experience a full spectrum of climate conditions. All Marines are aware of the dangers of heat and humidity in the summer months. As the thermometer starts to drop there are many hazards which need to be addressed in the coming months. From my travels in Iraq, I noticed that space heaters are used in many of the work spaces. There is no question that these heaters increase productivity in workspaces and comfort in living spaces. But every Marine needs to keep aware of the dangers and help prevent the needless loss of equipment and personnel to fires produced by the use of heaters.

The MCCLL has published a series of electrical utilities, electrical fire, and generator safety and operations reports recently. Remember that the same old ad hoc expeditionary Iraqi construction, US Army, I MEF to II MEF to I MEF infrastructure is the same old wiring that is going to power your high electrical draw heater. Reduce your risk by ensuring your wiring is rated for the high amperage requirement and that you do not have too many devices plugged into the same electrical power strip.

I look forward to your comments, observations, and concerns.

Semper Fidelis,
Col Monte Dunard, USMCR
Director MCCLL

Space Heaters

As the weather begins to cool down and nights become longer, many people will begin to pull out space heaters. Space heaters are a great way to heat a personal work or living area or even an entire room. Most space heaters rely on convection (the circulation of air in a room) to heat a room and some rely on radiant heating. Radiant heaters emit infrared radiation that directly heats up objects and people that are within their line of sight.

If you plan to use space heaters to help heat your working or living spaces, use extreme caution. In past issues of the Safety Corner, we have stressed the importance of electrical safety. In addition to the fire hazards produced by space heaters, you also need to be aware of where your space heaters are connected and the additional power that is required. Do not overload power strips, outlets, or extension cords.

To help mitigate hazards, remember to check the location and condition of your fire extinguishers. As personnel rotate remember that everyone is not aware of fire evacuation and emergency plans. Know what to do if a fire starts in your work or living space. Have a designated muster place and have a plan for accountability. Practice and update as necessary.

Safety is a top consideration when using space heaters. The U.S. Consumer Product Safety Commission estimates that more than 25,000 residential fires every year are associated with the use of space heaters. More than 300 people die in these fires. An estimated 6,000 people receive hospital emergency room care for burn injuries associated with contacting hot surfaces of space heaters.

The observations and recommendations contained in The Marine Corps Center for Lessons Learned (MCCLL) Safety Corner represent the considered judgment of Marines who have identified safety issues in their units. The purpose of this newsletter is to apprise other Marines of these safety recommendations and to encourage them to enter their own lessons into the Marine Corps Lessons Management System (LMS).



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Suggestions for Space Heaters

The following are general suggestions for selection, safe use, and maintenance of a variety of space heaters:

- Select a space heater with a guard around the flame area or the heating element.
- Select a heater that has been tested and certified by a nationally recognized testing laboratory.
- Read and follow the manufacturer's operating instructions.
- Never use or store flammable liquids around a space heater.
- Place heaters at least three feet away from objects such as bedding and furniture. Do not place heaters where towels or other objects could fall on the heater.
- Be certain that your heater is placed on a level, hard and nonflammable surface, not on rugs or carpets

Different types of space heaters present different safety problems. Be aware of important information and advice about these specific types of heaters. Inspect heaters regularly to ensure they are in a safe working condition. Replace missing guards and controls at once. Never operate a defective heater.

Safety and First Aid

To distinguish a minor burn from a serious burn, the first step is to determine the degree and the extent of damage to body tissues. The three classifications of first-degree burn, second-degree burn and third-degree burn will help you determine emergency care:

First-degree burn

The least serious burns are those in which only the outer layer of skin (epidermis) is burned. The skin is usually red, with swelling and pain sometimes present. The outer layer of skin hasn't been burned through.

Second-degree burn

A second degree burn is when the first layer of skin has been burned through and the second layer of skin (dermis) also is burned. Second-degree burns produce severe pain and swelling. If the second-degree burn is no larger than 2 to 3 inches in diameter, treat it as a minor burn. If the burned area is larger or if the burn is on the hands, feet, face, groin or buttocks, or over a major joint, get medical help immediately.

Third-degree burn

The most serious burns are painless and involve all layers of the skin. Fat, muscle and even bone may be affected. Areas may be charred black or appear dry and white. Difficulty inhaling and exhaling, carbon monoxide poisoning or other toxic effects may occur if smoke inhalation accompanies the burn.

For 1st and 2nd Degree Burns

1. **Cool the burn.** Hold the burned area under cold running water for several minutes, or cool it with cold compresses. Cooling the burn reduces swelling by conducting heat away from the skin. Don't put ice on the burn.
2. **Cover the burn with a sterile gauze bandage.** Wrap gauze loosely to avoid putting pressure on burned skin. Bandaging keeps air off the burned skin, reduces pain and protects blistered skin. Minor burns usually heal without further treatment. Watch for signs of infection, such as increased pain, redness, fever, swelling or oozing. If infection develops, seek medical help.

Don't break blisters. Broken blisters are vulnerable to infection.

For 3rd Degree Burns

Call for emergency medical assistance. Until an emergency unit arrives, follow these steps:

1. **Don't remove burnt clothing.** However, do make sure the victim is no longer in contact with smoldering materials or exposed to smoke or heat.
2. **Don't immerse severe large burns in cold water.** Doing so could cause shock.
3. **Check for signs of circulation (breathing, coughing or movement).** If there is no breathing or other sign of circulation, begin CPR.
4. **Cover the area of the burn.** Use a cool, moist, sterile bandage; clean, moist cloth; or moist towels.





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Gases released through many fuel heaters can cause serious health problems if used in areas with poor ventilation. It is important to understand possible effects of combustion heaters. Seek medical attention immediately if you have been exposed to any chemicals or experience any of these symptoms:

Carbon monoxide (CO) is a colorless, odorless gas that interferes with oxygen availability throughout the body. Exposed individuals, and even some physicians, may not recognize some symptoms as CO poisoning due to their similarity to viral illnesses such as influenza. Low levels of CO can cause fatigue and chest pain. As CO exposures increase, symptoms progressively worsen through headaches, drowsiness, nausea, vomiting, confusion and disorientation. At very high CO exposures, loss of consciousness and death are possible.

Nitrogen dioxide can irritate the skin and the mucous membranes in the eyes, nose and throat. Depending upon the level and duration of exposure, respiratory effects range from slight irritation to burning and chest pain, coughing, and shortness of breath. Repeated exposure to elevated levels of nitrogen dioxide may contribute to bronchitis.

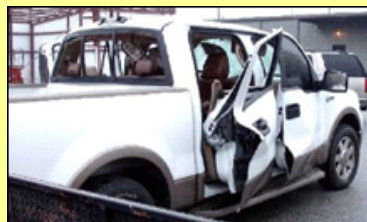
Safety Alert

UNRECOGNIZED HAZARDS CAN EXIST ANYWHERE. The explosion of a sprayed "canned air" container in a parked vehicle is a good example of just that!

The driver of this truck sprayed "canned air" (like you use to clean your keyboard) in his truck to clean the dash and overhead console. A few minutes later he rolled down his window, lit a cigarette, and a flash explosion occurred inside the cab. Thankfully, the driver was alone in the truck. He had first and second degree burns on his arms and spent four days in a burn center.



Front view of truck after ignition/explosion



Rear view of truck after ignition/explosion



Use caution with compressed chemicals. Read contents very carefully. Most aerosols have flammable propellants - even "canned air." Canned air contains difluoroethane, tetrafluoroethane, or similar chemicals. These chemicals can also act as an asphyxiant if inhaled in large enough concentrations. Check with your local distributors and request a copy of the manufacturer's Material Safety Data Sheet (MSDS) to view the hazards of your canned air.

It was commented that had he not been participating in another deadly activity - smoking - he might have avoided blowing up his truck.

The Kensington brand also carries the warning "Do not store at temperatures over 120 Degrees"

Recent Safety Corner Comments

The below comments were recently received in response to the Safety Corner Dated 26 September 2006 on Materials Handling Equipment. Our thanks to Mr. Randall Stiles, an Instructional System Specialist.

"I was privileged to work with the RTCH Program Office at MarCorSysCom on manpower and training analysis in 2004-2005. As part of that project's analyses, we visited the RTCH Manufacturer's plant in San Antonio, TX. You wouldn't think a monster like the RTCH could easily be damaged, but the company's boneyard was full of RTCH's that would cost nearly as much as a new one to repair damage caused mostly by misuse and mishandling. Broken and bent lift arms and frames were caused by such things as using the RTCH and a container as a bulldozer to level out storage areas in the sand. Most of these systems were Army, but it was evident that a lack of leadership and supervision can easily lead to taking a very valuable asset out of commission quickly and for a long time. Most of these RTCHs had to be returned to CONUS for repairs. The RTCH is a complex system requiring skilled operators. It has a very good training simulator system available. Like all Marine systems, train like you operate, and minimize these costly kinds of mishaps and damages."